

REMARKS

This amendment is filed in response to the Office Action dated November 29, 2005. In view of these amendment and remarks, this application should be allowed and the case passed to issue. No new matter is introduced by this amendment. The amendment to claims 1 and 8 is supported by originally filed claim 3. Support for the amendment to claim 6 is found in originally filed claim 1.

Claims 1, 2, and 4-8 are pending in this application. Claims 1-8 are rejected. Claims 1, 6, and 8 have been amended in this response. Claim 3 was canceled in this response.

Information Disclosure Statement

The Office Action did not include an initialed copy of the PTO-1449 form which accompanied the Information Disclosure Statement filed February 12, 2004. Applicants respectfully request the Examiner consider the references cited therein and include a properly initialed copy of the PTO-1449 form with the next official action.

Claim Rejections Under 35 U.S.C. § 102

Claims 1, 5, and 8 were rejected under 35 U.S.C. § 102(b) as being anticipated by Neipert et al. (U.S. Pat. No. 2,913,332). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the present invention as claimed and the cited prior art.

An aspect of the present invention, per claim 1, is a molten salt bath for electroforming containing lithium bromide, cesium bromide, and a halide of an alkali metal and/or a halide of an alkaline-earth metal. The sum of a mole fraction of the lithium bromide and a mole fraction of the cesium bromide is set to be within a range from at least 0.5 to less than 0.95 with respect to the entire molten salt bath for electroforming.

Another aspect of the invention, per claim 8, is a molten salt bath for electroforming obtained by mixing lithium bromide, cesium bromide, and a halide of an alkali metal and/or a halide of an alkaline-earth metal. The sum of a mole fraction of the lithium bromide and a mole fraction of the cesium bromide is set to be within a range from at least 0.5 to less than 0.95 with respect to the entire molten salt bath for electroforming.

The Examiner asserted that Neipert et al. teach a molten salt bath containing lithium bromide, cesium bromide, and a halide of an alkali metal and/or a halide of an alkaline-earth metal.

Neipert et al., however, do not anticipate the claimed molten salt bath for electroforming because Neipert et al. do not disclose a molten bath for electroforming in which the sum of a mole fraction of the lithium bromide and a mole fraction of the cesium bromide is set to be within a range from at least 0.5 to less than 0.95 with respect to the entire molten salt bath for electroforming, as required by claims 1 and 8.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the disclosure in a single reference of each element of a claimed invention. *Helifix Ltd. v. Blok-Lok Ltd.*, 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994); *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 399, 36 USPQ2d 1101 (Fed. Cir. 1995); *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). Because Neipert et al. do not disclose a molten salt bath for electroforming in which the sum of a mole fraction of the lithium bromide and a mole fraction of the cesium bromide is set to be within a range from at least 0.5 to less than 0.95 with respect to

the entire molten salt bath for electroforming, as required by claims 1 and 8, Neipert et al. do not anticipate claims 1 and 8.

Applicants further submit that Neipert et al. do not suggest claims 1 and 8.

Claim Rejections Under 35 U. S. C. § 103

Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Neipert et al. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

Claim 2 is allowable for at least the same reasons as claim 1. As explained above, Neipert et al. do not suggest a molten salt bath for electroforming in which the sum of a mole fraction of the lithium bromide and a mole fraction of the cesium bromide is set to be within a range from at least 0.5 to less than 0.95 with respect to the entire molten salt bath for electroforming, as required by claim 1.

Claims 3 and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Neipert et al. in view of Tokumoto (U.S. Pat. No. 2,935,454) This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

The Examiner acknowledged that Neipert et al. do not teach the specific mole fraction sum of lithium bromide and cesium bromide to the entire bath nor the specific mole ratio of LiBr to CsBr. The Examiner asserted that Tokumoto teaches a molten salt bath for electrodepositing titanium. Although, Tokumoto teach a molten mixture comprising LiBr and KBr with a combined molar ratio of 76.5, the Examiner alleged that a skilled artisan would have expected a molten mixture comprising LiBr and CsBr to be chemically similar to a mixture of LiBr and KBr. The Examiner maintained that it would have been obvious to have selected the claimed molar ratio in order to deposit a metal with a smooth surface.

Claim 3 was canceled, however, the limitations of claim 3 have been added to claims 1 and 8.

The claimed molten salt bath composition and the Neipert et al. and Tokumoto molten salt baths differ in kind, and the behavior of the different cations varies considerably. Therefore, a skilled artisan would not have been motivated to apply the molar ratio disclosed by Tokumoto to the molten salt compositions of Neipert et al. Further, a molten salt bath in accordance with the present invention differs from Tokumoto in the temperature range in which electroformed products with a flat surface are obtained. Examples 2-4 and 6-9 of the present invention obtain a smooth surface at low temperatures such as 250 °C and 300 °C. Tokumoto, on the other hand, teaches electrodeposition in the much higher temperature range of 400 °C to 600 °C.

Claims 6 and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Westfall (U.S. Pat. No. 5,215,631) in view of Uriu et al. (U.S. Pat. No. 5,647,966) This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

An aspect of the invention, per claim 6, is a method of manufacturing a metal product comprising the steps of forming a resist pattern on a conductive substrate and exposing a portion of the conductive substrate. The conductive substrate having the resist pattern formed is immersed into a molten salt bath for electroforming containing lithium bromide, cesium bromide, and a halide of an alkali metal and/or a halide of an alkaline-earth metal. The molten salt bath for electroforming contains a metal to be precipitated and/or a compound of a metal to be precipitated. The metal is precipitated at a portion where the conductive substrate is exposed.

The Examiner asserted that Westfall teaches an electrolytic method of depositing metal using molten salt eutectic mixtures. The Examiner acknowledged that Westfall does not teach depositing metal onto a substrate having a resist pattern. The Examiner relied on the teaching of

Uriu et al. of precipitating a metal from an electrolytic bath on exposed portions of a conductive substrate to assert that it would have been obvious to modify the method of Westfall to selectively deposit metal on an exposed area of a conductive substrate.

Westfall and Uriu et al., whether taken alone, or in combination, however, do not suggest the claimed method. Neither Westfall nor Uriu et al. suggest immersing a conductive substrate having a formed resist pattern into a molten salt bath for electroforming containing lithium bromide, cesium bromide, and a halide of an alkali metal and/or a halide of an alkaline-earth metal, as required by claim 6. Neither Westfall nor Uriu et al. suggest the claimed composition of the molten salt bath.

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). There is no suggestion in Tokumoto to modify the molten salt bath of Neipert et al. to form the molten salt bath of claims 1 and 8. There is no motivation in either Westfall or Uriu et al. to modify the method of Westfall so that it includes the claimed molten salt bath composition, as required by claim 6.

The requisite motivation to support the ultimate legal conclusion of obviousness under 35 U.S.C. § 103 is not an abstract concept, but must stem from the applied prior art as a whole and realistically impel one having ordinary skill in the art to modify a specific reference in a specific manner to arrive at a specifically claimed invention. *In re Deuel*, 51 F.3d 1552, 34 USPQ2d

1210 (Fed. Cir. 1995); *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989).

Accordingly, the Examiner is charged with the initial burden of identifying a source in the applied prior art for the requisite realistic motivation. *Smiths Industries Medical System v. Vital Signs, Inc.*, 183 F.3d 1347, 51 USPQ2d 1415 (Fed. Cir. 1999); *In re Mayne*, 104 F.3d 1339, 41 USPQ2d 1449 (Fed. Cir. 1997). There is no motivation in Tokumoto to modify the molten salt bath of Neipert et al. to form the molten salt bath of claims 1 and 8. There is no motivation in either Westfall or Uriu et al. to modify the method of Westfall so that it includes the claimed molten salt bath composition, as required by claim 6.

In rejecting a claim under 35 U.S.C. § 103, the Examiner is required to discharge the initial burden by, *inter alia*, making "**clear and particular**" factual findings as to a **specific understanding** or **specific technological principle** which would have **realistically** impelled one having ordinary skill in the art to modify an applied reference to arrive at the claimed invention based upon facts, -- not generalizations. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 57 USPQ2d 1161 (Fed. Cir. 2000); *Ecolochem Inc. v. Southern California Edison, Co.*, 227 F.3d 1361, 56 USPQ2d 1065 (Fed. Cir. 2000); *In re Kotzab, supra*; *In re Dembiczak*, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999). That burden has not been discharged, as the Examiner has provided no factual basis for modifying the molten salt bath of Neipert et al. to form the molten salt bath of claims 1 and 8; and to modify the method of Westfall so that it includes the claimed molten salt bath composition, as required by claim 6.

The only teaching of the claimed molten salt baths for electroforming and method of manufacturing a metal product is found in Applicants' disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20

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USPQ2d 1438 (Fed. Cir. 1991). The Examiner's retrospective assessment of the claimed invention and use of unsupported conclusory statements are not legally sufficient to generate a case of *prima facie* obviousness. The motivation for modifying the prior art must come from the prior art and must be based on facts. The Examiner is not free to ignore the judicial requirement for **facts**. To do so is legal error. *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002).

The dependent claims are allowable for at least the same reasons as the independent claims from which they depend.

In view of the above amendments and remarks, Applicants submit that this case should be allowed and passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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